Thermidistat™ Control

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Installation, Start-Up, and Operating Instructions

NOTE: Read the entire instruction manual before starting the installation.

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SAFETY CONSIDERATIONS

Read and follow manufacturer instructions carefully. Follow all local electrical codes during installation. All wiring must conform to local and national electrical codes. Improper wiring or installation may damage Thermidistat Control.

Recognize safety information. This is the safety-alert symbol ⚠ . When you see this symbol on the equipment and in the instruction manual, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **would** result in minor personal injury or product and property damage.

INTRODUCTION

Carrier's 7-day programmable Thermidistat Control is a wall-mounted, low-voltage control which combines temperature and humidity control in a single attractive unit. An extension of Carrier's proven line of programmable thermostats, it provides separate setpoints for heating and cooling, and now adds humidification and dehumidification. Different heating and cooling setpoints and times are programmable for 4 periods per day and 7 days per week. Humidify and dehumidify outputs provide direct control of humidity. Batteries are not used. During power loss an internal memory stores programs and settings for unlimited time, and the clock continues to run for at least 8 hr.

INSTALLATION CONSIDERATIONS

POWER

Note that this control does not require batteries and is not "power stealing." It does require 24vac (R and C terminals) of the low-voltage transformer to be connected to it for proper operation. It will not operate without these 2 connections.

MODELS

There is only a single programmable model for all applications. It can be configured for AC or HP, 1- or 2-speed compressor, and for dual fuel installations, allowing it to be used in place of all Carrier thermostats.

HUMIDIFY EQUIPMENT AND CONNECTIONS

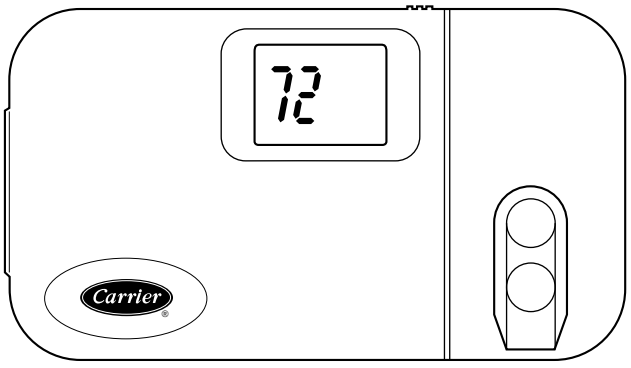
The humidify output connects directly to 24vac operated humidifiers. No other connection or interlock is required. Any of several installer-selectable operating modes are available.

DEHUMIDIFY EQUIPMENT AND CONNECTIONS

The dehumidify output connects to the dehumidify input on variable-speed furnaces and fan coils. Additional dehumidification is done by controlling the compressor. A variety of operating modes are available.

OUTDOOR TEMPERATURE SENSOR

Optimum performance is obtained when an outdoor temperature sensor is used with the Thermidistat Control. Plan installation so that 2 wires can be run from Thermidistat Control to an outdoor location, preferably on the north side of the house.



A94134

HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)
4-1/4	7-1/2	1-3/8

Fig. 1—Carrier Programmable Thermidistat Control

INSTALLATION

Step 1—Thermidistat Control Location

Thermidistat Control should be mounted:

- Approximately 5 ft (1.5m) from floor.

- Close to or in a frequently used room, preferably on an inside partitioning wall.
- On a section of wall without pipes or duct work.

Thermidistat Control should NOT be mounted:

- Close to a window, on an outside wall, or next to a door leading to the outside.
- Exposed to direct light and heat from a lamp, sun, fireplace, or other temperature-radiating object which may cause a false reading.
- Close to or in direct airflow from supply registers and return-air registers.
- In areas with poor air circulation, such as behind a door or in an alcove.

Step 2—Set DIP Switches

There is a 4 section DIP switch within the Thermidistat Control which must be properly set by the installer. It is easiest to set these 4 switches before the Thermidistat Control is mounted to the wall, so STOP and complete the following steps:

1. Open hinged Thermidistat Control cover.
2. Remove cover completely by snapping it apart at hinge.
3. Open Thermidistat Control by pressing back half of the right end of plastic case inward while, at the same time, pulling front and back halves apart at the right end. The 2 halves will swing apart.
4. Snap hinge apart to completely separate the 2 halves.
5. Switches are located in upper right corner of circuit board. To change switch position, use corner of a small screwdriver to slide switch to opposite position.
6. After switches have been set, do not reassemble the 2 halves. The rear plastic will be first mounted to wall.

SWITCH 1—AC/HP SELECT

Use this switch to select between air conditioner and heat pump systems.

TO SET:
OFF—for air conditioner installations. This is factory default.
ON—for heat pump installations, using either a fan coil or furnace (dual fuel).

SWITCH 2—1 SPEED/2 SPEED

This switch tells the system whether the compressor is 1 or 2 speed.

TO SET:
OFF—for single-speed compressor. This is factory default.
ON—for 2-speed compressors, whether AC or HP.

SWITCH 3—SMART/CONVENTIONAL RECOVERY

Selects between conventional and smart recovery from setback. Conventional recovery changes to new setpoint at programmed time. Smart recovery, which is active in both heating and cooling, starts 90 minutes earlier and smoothly adjusts setpoint so room will arrive at programmed temperature at programmed time.

TO SET:
OFF—for smart recovery. This is factory default.
ON—for conventional recovery.

SWITCH 4—INSTALLER TEST OFF/ON

Selects a special installer test mode which assists with checkout and troubleshooting. See Step 5.

TO SET:
OFF—for normal operation. This is factory default.
ON—for installer test mode.

Step 3—Install Thermidistat Control

⚠ WARNING

Before installing Thermidistat Control, turn off all power to equipment. There may be more than 1 power disconnect. Electrical shock can cause personal injury or death.

1. Turn off all power to equipment.
2. If an existing thermostat is being replaced:
   a. Remove existing thermostat from wall.
   b. Disconnect wires from existing thermostat, 1 at a time.
   c. As each wire is disconnected, record wire color and terminal marking.
   d. New or additional wire may be needed to accommodate added humidity outputs.
   e. Discard or recycle old thermostat.

NOTE: Mercury is a hazardous waste and MUST be disposed of properly.

3. Select Thermidistat Control rear plastic. (If it is not separated from the remainder of the Thermidistat Control, refer to Step 2 above.)
4. Route wires through large hole in rear plastic. Level rear plastic against wall (for aesthetic value only—Thermidistat Control need not be leveled for proper operation) and mark wall through 2 mounting holes.
5. Drill two 3/16-in. mounting holes in wall where marked.
6. Secure rear plastic to wall with 2 screws and anchors provided. Additional mounting holes are available for more secure mounting if needed. Make sure all wires extend through hole in mounting base.
7. Adjust length and routing of each wire to reach proper connector block and terminal on rear plastic with 1/4-in. extra length. Strip only 1/4 in. of insulation from each wire to prevent adjacent wires from shorting together when connected.
8. Match and connect equipment wires to proper terminals of each connector block. (See Table 5 and Wiring Diagrams Fig. 2 through 25.) Remember R and C must be connected for proper operation.

⚠ CAUTION

Improper wiring or installation may damage Thermidistat Control. Check to make sure wiring is correct before proceeding with installation or turning on power.

9. Push any excess wire into wall and against rear plastic. Seal hole in wall to prevent air leaks. Leaks can affect operation.
10. Reattach Thermidistat Control body to rear plastic by first reattaching hinge.
11. Close Thermidistat Control assembly, making sure pins on back of circuit board align with sockets in connector.
12. Turn on power to equipment.

On power up, all display segments will light for 5 sec. For the next 5 sec, a 2-digit code appears on large display which identifies Thermidistat Control configuration:

1. AC—for 1-speed air conditioner
2. HP—for 1-speed heat pump
3. A2—for 2-speed air conditioner
4. H2—for 2-speed heat pump
5. dF—for 1-speed dual fuel

6. d2—for 2-speed dual fuel
7. HS—for special 3-stage auxiliary heat with FK4C Fan Coil and 1-speed heat pump

When this identifier disappears, normal operation begins. The MODE control should be set to OFF and FAN control to AUTO, so equipment does not start until further configuration and check-out is completed.

Step 4—Set Thermidistat Control Configuration

Configuration options, like DIP switch settings, are intended to be selected at installation and normally are not modified by the homeowner. These options are not discussed in the homeowner's manual and therefore must be made as part of the installation. A special procedure allows entry into the configuration mode. While in configuration mode, up to 15 selections can be made. A description of each selection and how to use the configuration mode follows.

CONFIGURATION OPTIONS — SUMMARY:

Option 1—Anticipator adjustment

Option 2—Clean filter timer adjustment

Option 3—English/Metric selection

Option 4—Fan (G) ON with W selection

Option 5—Variable-speed blower present selection

Option 6—Cooling lockout below 55° selection

Option 7—Variable speed super dehumidification selection (only available when variable-speed blower is used)

Option 8—Auxiliary heat lockout temperature adjustment (only available when heat pump is used)

Option 9—Three-stage auxiliary heat selection (only available when single-speed heat pump is used)

Option 10—Dual fuel selection (only available when heat pump is used)

Option 11—Dual fuel crossover temperature adjustment (only available when dual fuel is selected)

Option 12—Defrost heat selection (only available when heat pump is used)

Option 13—Room temperature offset adjustment

Option 14—Heat/cool dead band adjustment

Option 15—Enable auto mode

TO ENTER CONFIGURATION MODE:

Press and hold FAN button for approximately 10 sec until COOL setpoint display indicates a flashing 01. The Thermidistat Control is now in configuration mode. It will automatically exit this mode if no button is pressed for 3 minutes. Pressing END button will exit configuration mode immediately.

WHILE IN CONFIGURATION MODE:

The upper small (COOL setpoint) display indicates selected option number and large display indicates selection made within that option. One of these will be flashing. The up and down buttons are used both to move between available options and to make selection for each option. When option number (small display) is flashing, up and down buttons adjust it, moving between available option numbers. After desired option number has been selected, press SET TIME/TEMP button once. The large display will now flash, indicating that up and down buttons now control available choices within that option. Each press of TIME/TEMP button switches between available option (small display) and available selections within each option (large display).

CONFIGURATION OPTIONS — SELECTION:

Option 1—Anticipator Adjustment

This adjustment controls sensitivity and cycle rate of Thermidistat Control. Higher numbers decrease sensitivity and slow cycle rate. Lower numbers increase sensitivity and cycle rate. However, a limiting feature will not allow more than 4 cycles per hr, regardless of setting. Anticipator values can range from 1 to 9. Factory default is 3. This default selection provides optimum performance in nearly all installations. Try it first. Do not change setting unless there is evidence of need to do so.

Unlike conventional anticipators, this setting is not determined by current draw. There is no need to measure, know, or compensate for current draw. There is also no droop with this Thermidistat Control. Regardless of setting and number of stages, both heating and cooling will control to their respective setpoints.

TO ADJUST:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." The upper small (COOL setpoint) display will be flashing 01. If not, use up and down buttons to move it to 01.
2. Press SET TIME/TEMP button once to flash current selection of 1, 2, 3, 4, 5, 6, 7, 8, or 9 on large display. Factory default is 3.
3. Use up and down buttons to move between available choices.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 2—Clean Filter Timer

Select hours of blower operation (heating, cooling, or fan) before CLEAN FILTER icon is displayed. With OFF selected, icon will never come on, disabling this feature. Time selection can range from 400 to 3600 hr by selecting numbers 1 through 9. (Time is 400 X number selected.) Factory default is 2 (800 hr). Recommended selections are: disposable filter—400 to 800 hr, media filter—1200 to 1600 hr, or electronic air cleaner—1600 to 2400 hr of blower operation.

TO SELECT OR ADJUST:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 02.
2. Press SET TIME/TEMP button once to display current selection of OF, 1, 2, 3, 4, 5, 6, 7, 8, or 9 on large display. Factory default is 2.
3. Use up and down buttons to move between available choices.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 3—English/Metric

Select between Fahrenheit and Celsius operation. Factory default is Fahrenheit.

TO SELECT OR ADJUST:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 03.
2. Press SET TIME/TEMP button once to flash current selection of F or C. Factory default is F.
3. Use up and down buttons to move between F and C on large display.

4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 4—Fan (G) On With W

This selection determines whether fan (G) output is to be ON or OFF when any W (furnace or strip heat) output is ON. Most furnaces and fan coils manage their own blowers and do not require separate G signal. For these applications, select OFF. Some auxiliary heaters require separate G signal to turn on blower. In this case, select ON. Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 04.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to alternate between OF and ON on large display.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 5—Variable Speed (ICM) Blower

If furnace or fan coil contains a variable-speed (ICM) blower, set this option to ON. For normal (PSC) blowers, set to OF. This selection enables system to use special features available only in units with an ICM blower. Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 05.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to alternate between OF and ON on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 6—Cooling Lockout Below 55°F

This option disables cooling when outdoor temperature is below 55°F. It requires an outdoor temperature sensor. Set to OF to allow cooling below 55°F. Set to ON to prevent cooling below 55°F. Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 06.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to alternate between OF and ON on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 7—Variable Speed Superdehumidify

This option requires prior selection of variable-speed (ICM) blower (Option 5). When selected, this option operates blower at reduced airflow during dehumidification demand. It is done by supplying blower with a Y signal and no G signal on a call for cooling. Not all ICM blowers have this feature. Check Installation Instructions for ICM air handler used. Select OF for normal operation (Y and G supplied on a cooling call). Select ON for super dehumidification (Y with no G on a cooling and dehumidify call). Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 07.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to alternate between OF and ON on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 8—Auxiliary Heat Lockout Temperature

This option requires prior selection of heat pump (DIP switch 1 ON). It allows selection of an outdoor temperature of OF, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, or 55°F. Outdoor temperature sensor MUST be attached. If temperature is selected and outdoor temperature sensor is not attached, error message E3 will appear. See "Error Codes." In heat pump systems, auxiliary heat is prevented from operating for outdoor temperatures above selected temperature. In dual fuel systems, furnace is prevented from operating for outdoor temperatures above selected temperature. If OF is selected, outdoor temperature does not affect system operation. Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 08.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to move between OF, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, or 55 on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 9—Special 3-Stage Electric Heat

This option requires prior selection of single-speed heat pump and variable-speed (ICM) fan coil (DIP switch 1—ON, DIP switch 2—OF, Option 7—ON). It provides 3 stages of electric heat from W1 and W2 by sequencing W1 only, then W2 only, then both W1 and W2. See FK Series Fan Coil Installation Instructions for further information. For 3-stage heat, select ON. For normal 1- or 2-stage heat, select OF. Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 09.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to alternate between OF and ON on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 10—Dual Fuel Equipment

All dual fuel systems must be equipped with a high pressure switch to turn off the compressor under high pressure condition. It protects compressor and indoor coil from overpressure which would occur if a failure or wiring error resulted in the heat pump and furnace operating at the same time. High Pressure Switch Kit includes required switch and instructions for proper operation.

This option requires prior selection of heat pump (DIP switch 1—ON), and must be selected in dual fuel installations. It prevents simultaneous operation of both furnace and heat pump, and

prevents direct transition from heat pump to furnace operation. When system is dual fuel (heat pump and furnace), set to ON. When system contains fan coil, set to OF. Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 10.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to alternate between OF and ON on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

⚠ CAUTION

All dual fuel installations must be equipped with a high pressure switch to turn off compressor under a high indoor coil pressure condition.

Option 11—Dual Fuel Crossover Temperature

This option requires prior selection of heat pump (DIP switch 1—ON) and dual fuel equipment (Option 10—ON). It allows selection of an outdoor temperature of OF, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, or 55°F. Outdoor temperature sensor must be attached. If temperature is selected and outdoor temperature sensor is not attached, error message E3 will appear. Heat pump is prevented from operating for outdoor temperatures below selected temperature. If OF is selected, outdoor temperature does not affect system operation. Factory default is OF (off).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 11.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to move between OF, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, or 55 on large display. Factory default is OF.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 12—Defrost Heat Select

This option allows installer to select the amount of electric heat provided by Thermidistat Control during a heat pump defrost cycle. This can be very helpful in maintaining a comfortable leaving air temperature during defrost. The Thermidistat Control senses when defrost is in progress by monitoring voltage placed on the O line by the heat pump while defrosting. It responds by turning on selected combination of W1 and W2 during defrost. Note that this is very different from the operation of an ordinary thermostat, which cannot sense defrost in progress and only turns on its W outputs in response to a temperature demand. Combinations of W1 and W2 are selected via the following:

Table 1—W1 / W2 Outputs

SELECTION	DEFINITION
0	Neither W1 or W2 is turned on. This is factory default.
1	Only W1 is turned on.
2	Both W1 and W2 turned on.
3	Only W2 turned on (available only if 3-stage heat is selected).

The selection procedure is given below. If 0 is selected, operation is like that of an ordinary thermostat, and a wire is required between W2 of outdoor unit and a selected W on indoor unit. When selection 1, 2, or 3 is made, no wire should be connected from outdoor W2 because this connection may override selection made. Obviously the heater must be in 2 sections, and fan coil jumper must be removed between W1 and W2 for there to be a difference between selections 1, 2, and 3. For most heaters, W1 is lower wattage heater, and W2 is higher, although some have equal elements for W1 and W2. Consult fan coil/heater combination for the actual wattage connected to each of W1 and W2.

In dual fuel applications, above selection choices apply and can be used to select low or high fire if furnace is 2 stage. W1 will produce low fire. W1 and W2 together produce high fire. This option provides no value with single-stage furnaces because only 1 value of heat is available.

The selection choices guarantee selected outputs will be on during defrost. If room temperature demand requires additional heat, it will be supplied, resulting in additional outputs being turned on. If room overheats, specified outputs will not turn off, guaranteeing a sufficiently warm leaving air temperature during defrost. Temperature overshoot during defrost can occur, but is almost never noticeable because of the short duration of the defrost cycle (4 minutes typical, 10 minutes maximum).

An additional feature of Thermidistat Control defrost is that it always allows defrost cycle to run to completion. The Thermidistat Control leaves the Y output on as long as outdoor unit holds voltage on the O line, even if it is satisfied. This prevents premature termination of defrost cycles, which occur with normal thermostats.

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 12.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to move between 0, 1, 2, or 3 (if available) on large display. See Table 1 for effect of these choices. Factory default is 0.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 13—Room Temperature Offset Adjust

This option allows calibration (or deliberate miscalibration) of room temperature sensor. There are various reasons why homeowners may want to have displayed temperature adjusted to a higher or lower value. The selected number is number of degrees, plus or minus, which will be added to actual temperature. The numbers can range between -5 and +5. Factory default is 0. This adjusted value will be used as actual temperature for both display and control action. For example, if 2 is selected, 72°F actual will read 74°F. If setpoint is 72°F, the room will control to an actual temperature of 70°F which will be displayed and acted upon as if it were 72°F. The effect is that a positive number selection will make the room temperature lower and vice versa. The Thermidistat Control is calibrated within an accuracy of plus or minus 1° when shipped from the factory, so this adjustment will provide the best accuracy when set to 0.

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 13.
2. Press SET TIME/TEMP button once to flash large display.

Table 2—Equipment Outputs

	1-SPEED AC	2-SPEED AC	1-SPEED HP	2-SPEED HP
Cool—0 to 2 minutes	Y, G	Y1, G	Y, G, O	Y1, G, O
Cool—2 to 4 minutes	Y, G	Y1, Y2, G	Y, G, O	Y1, Y2, G, O
Heat—0 to 2 minutes	W1	W1	Y, G	Y1, G
Heat—2 to 4 minutes	W1, W2	W1, W2	Y, G	Y1, Y2, G
Eheat—0 to 2 minutes	---	---	W1	W1
Eheat—2 to 4 minutes	---	---	W1, W2†	W1*

* Two-stage heat not available

NOTE: For Y—use terminal Y/Y2, for Y1—use terminal Y1/W2, for W2—use terminal O/W2, for O—use terminal O/W2, for W1—use terminal W/W1, for W2†, use terminal Y1/W2

3. Use up or down buttons to move between -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, or 5 on large display. Factory default is 0.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 14—Heat/Cool Dead Band Adjustment

This option selects the minimum difference between heat and cool setpoints. A larger difference saves energy and a smaller difference decreases temperature difference between heating and cooling. Factory default is 2, which means cooling setpoint must be a minimum of 2° above heating setpoint. An attempt to move them closer will result in one "pushing" the other to maintain the required difference.

Depending on setpoints, moving dead band closer than 2° may result in regular cycling between heat and cool when AUTO mode is selected. However, this cycling cannot occur more often than 1 transition every 20 minutes. The system has a built-in requirement that it cannot switch between heat and cool without a 20 minute "off" time between the 2 operations. Specifically, to switch from 1 mode to the other, there must be no demand for the old mode and a demand for the new mode, and this must exist continually for 20 minutes before transition to the new mode will occur.

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 14.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up or down buttons to move between 0, 1, 2, 3, 4, 5, or 6 on large display. Factory default is 2.
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Option 15—Enable Auto Mode

This option allows the installer to enable or disable AUTO mode (automatic changeover between heat and cool). When disabled, AUTO icon does not appear when successive presses of MODE button are used to move between OFF, HEAT, COOL, and EHEAT (in heat pump systems). Factory default is ON (AUTO enabled).

TO SELECT:

1. Enter configuration mode if not already there. See Step 4 "To Enter Configuration Mode." Use up and down buttons to make small (now flashing) display indicate 15.
2. Press SET TIME/TEMP button once to flash large display.
3. Use up and down buttons to move between OF and ON on large display. Factory default is ON (AUTO enabled).
4. Press SET TIME/TEMP button again to flash upper small display for selection of another option, or press END to exit configuration mode.

Step 5—System Start-Up and Checkout

The Thermidistat Control is designed with a built-in installer test capability. It allows easy operation of equipment without delays or setpoint adjustments to force heating or cooling.

To enable installer test mode, move DIP switch No. 4 to ON position. To access this switch, open case as described in Step 2. Use the corner of a small screwdriver to slide switch No. 4 to ON position.

While in installer setup mode, clock will display "InSt," FAN button will control fan, and MODE button will control heating and cooling.

TO TEST FAN:

Fan button switches FAN icon between AUTO and ON. While ON is displayed, G output will be on, turning fan on. Allow up to 10 sec after button is pressed for fan to turn on and off. On some fan coils, fan continues to operate for 90 sec after G signal is removed.

TO TEST COOLING AND DEHUMIDIFICATION:

Press MODE button until COOL icon turns on. Cooling begins within 10 sec and remains on for 4 minutes. If system is 2-speed, low speed comes on for first 2 minutes, followed by high speed for second 2 minutes. At the end of 4-minute run, cooling stops, and MODE reverts back to OFF. At any time during 4-minute run time, cooling may be turned off by pressing MODE button until OFF appears. While cooling is on, successive presses of HUMIDITY button turn dehumidify output on and off. While this output is active, "hu" appears in heat setpoint display. Equipment outputs for different equipment types are listed in Table 2.

TO TEST PRIMARY HEATING:

Press MODE button until HEAT icon turns on. Primary heating begins within 10 sec and remains on for 4 minutes. This will be furnace or electric heat in AC system and heat pump heating in heat pump system. If system has 2 stages of primary heat, first stage will be on for 2 minutes followed by second stage for 2 minutes. At the end of 4-minute run, heating stops, and MODE reverts back to OFF. At any time during 4-minute run time, heating may be turned off by pressing MODE button until OFF appears. While heating is on, successive presses of HUMIDITY button turn humidify output on and off. While this output is active, "dh" appears in cool setpoint display. Equipment outputs for different equipment types are listed in Table 2.

TO TEST AUXILIARY HEATING:

Auxiliary heating only exists in heat pump systems. To test, press MODE button until EHEAT icon turns on. This will be electric heat in standard heat pump systems and furnace in dual fuel systems. Auxiliary heating begins within 10 sec and remains on for 4 minutes. If there are 2 stages of auxiliary heat, first stage comes on for 2 minutes followed by second stage for 2 minutes. At the end of 4-minute run, heating stops and MODE reverts back to OFF. At any time during 4-minute run time, heating may be turned

off by pressing MODE button until OFF appears. Actual outputs for different equipment types are listed in Table 2.

Step 6—Final Settings

Be sure to return DIP switch No. 4 back to OFF position to exit installer setup mode. Assuming system is to be left in operation after installation is complete, use MODE button to select between HEAT, COOL, or AUTO to provide desired operation of heating, cooling, or both.

The default setpoints and programmed schedule conform to the Energy Star® requirements of the U.S. Department of Energy for both heating and cooling. These provide energy saving temperature settings. Refer to Table 3.

Table 3—Energy Star Schedule

SCHEDULE	HEAT	COOL
Wake 6:00 AM	68°F	78°F
Day 8:00 AM	60°F	85°F
Evening 5:00 PM	68°F	78°F
Sleep 10:00 PM	60°F	82°F

If programmed schedule is to be used, make sure HOLD icon is off. It is turned on and off by HOLD button.

If fixed temperatures are desired, use HOLD button to turn on HOLD icon. This will maintain setpoints, not allowing them to change with programmed schedule.

The FAN button may be used to select between AUTO (fan on only with equipment) and FAN (fan on continuously) fan modes.

For further information on temperature selection and programming, refer to Homeowner's Guide.

HUMIDITY CONTROL FEATURES

The various humidity control features of the Thermidistat Control are explained below. They are grouped into 2 sections: humidification and dehumidification. At the end of each section, instructions on how to select each feature are given.

HUMIDIFICATION

The Thermidistat Control directly connects to a standard 24-vac humidifier to control humidification in the home. A humidify setpoint between 10 and 45 percent relative humidity is selected by the homeowner, or all humidification can be turned off. When humidity in home drops below setpoint, humidifier will be turned on to raise humidity level. Humidification can only occur in heating mode (HEAT or AUTO/HEAT). Five different humidification selections are available and are described below.

Normal Humidify

In normal humidify, humidifier will be on if there is a humidity demand and any heating equipment is on. This will include furnace, heat pump, or auxiliary heat. In heat pump applications, this is an improvement over using an external humidistat, which only supplies humidity when auxiliary heat is on.

Fan Humidify

This configuration allows a humidify demand to turn on fan and humidifier together, even if there is no heat demand. It is particularly useful when the furnace is oversized, resulting in short heating cycles. It allows the humidifier to run longer, supplying more humidity to the home. Note that fan hours will increase, using more electricity. Also, the humidifier delivers less moisture to cooler air than it does to heated air.

Auto Humidify

This feature is designed to eliminate the problem of sweating windows in very cold weather. When selected, the setpoint is automatically reduced by 1 percent for every drop of 2°F in outdoor temperature between 50°F and 0°F. The setpoint may be changed at any time, and it will continue to track outdoor temperature from the new setpoint and current outdoor temperature. The adjusted setpoint range is still limited to between 10 and 45 percent relative humidity. To use this feature, an outdoor temperature sensor MUST be attached. If not, E3 error message will be displayed.

Auto and Fan Humidify

The 2 choices of AUTO and FAN can be selected together. This provides both functions simultaneously.

Humidify Off

The humidify function can be turned off completely. This does not require changing existing setpoints.

To Select Humidification (Between NORMAL, FAN, AUTO, FAN and AUTO, or OFF)

Press HUMIDITY button to bring up humidity select screen. It is indicated by "hu" or "dhu" in clock display. Successive presses will change between "hu" and "dhu" in clock display. Select "hu" for humidity functions. The large display shows actual humidity level. The smaller
display (in heat setpoint location) shows humidity setpoint (HSP) or OF (off). When HSP value is displayed, its value can be changed with up and down buttons. Successive presses of MODE button will move between 5 choices described above and each will be indicated as shown in Table 4.

To exit humidity select screen, press END button.

Additional Humidify Comments

The humidifier is actually turned on when humidity is 1 percent below setpoint and turned off when it reaches 1 percent above setpoint. This built-in hysteresis prevents humidify output from toggling on and off when humidity level is near setpoint.

The vacation mode provides some additional humidification functions. These are specially designed to provide protection for an unoccupied home while simultaneously minimizing energy use. Refer to "Vacation" section for additional information.

DEHUMIDIFICATION

Dehumidification is done only during cooling. Depending on type of equipment used, compressor speed, blower speed, setpoint adjustment, and equipment cycling are modified to provide added dehumidification. A dehumidification setpoint (separate from humidification setpoint) is available to the homeowner. It can range from 50 to 90 percent relative humidity. When actual humidity is higher than setpoint, a dehumidification demand exists. The Thermidistat Control responds by activating its dehumidify output. It may also control the compressor and blower,

Table 4—Humidification Selections

SELECTION	MODE DISPLAY	FAN DISPLAY	HUMIDIFY SP DISPLAY
Normal Humidify	Blank	Blank	HSP Value
Fan Humidify	Blank	FAN	HSP Value
Auto Humidify	AUTO	Blank	HSP Value
Auto and Fan	AUTO	FAN	HSP Value
Humidify Off	Blank	Blank	OF

Table 5—Dehumidification Selections

SELECTION	MODE DISPLAY	FAN DISPLAY	DEHUMIDIFY SP DISPLAY
Normal Dehumidify	Blank	Blank	DSP Value
Cool to Dehumidify	COOL	Blank	DSP Value
Dehumidify OFF	Blank	Blank	OF

depending on equipment type and dehumidify selection choice. The 3 available selections are described below.

The amount of extra dehumidification available is very dependent on the type of equipment in the home. Without a variable-speed blower, the system's ability to adjust dehumidification is very limited.

Normal Dehumidify Operation

When normal dehumidify is selected, the compressor will not turn on without a cooling demand. If dehumidify demand exists while cooling, dehumidify output will also be active (24vac removed). This output commands variable-speed blowers to reduce their airflow, which improves water removal from the cooled air.

Cool to Dehumidify

The cool to dehumidify selection tells the system to operate the compressor, within limits, when there is a dehumidify demand even if there is no cooling demand. The limits are that the system may overcool up to 3°, but no more, while attempting to satisfy a dehumidify demand. Within this 3° range, there is an additional balance between overcooling and humidity satisfaction. When overcooling must occur, the dehumidify setpoint is adjusted upward by 2 percent per degree of overcooling. For example, a cooling setpoint of 76°F and a dehumidify setpoint of 60 percent is equivalent to a cooling setpoint of 75°F and a dehumidify setpoint of 62 percent. This dehumidify setpoint change is internal to the Thermidistat Control and is not shown on the display.

During cool-to-dehumidify demand, the compressor runs a maximum of 10 minutes on, followed by 10 minutes off. When the compressor turns off, the fan (G output) is also turned off immediately. The immediate fan shutoff prevents re-evaporation of water on the coil, improving dehumidification. If fan is set to continuous, the G (fan on) signal is removed for 5 minutes starting when compressor turns off.

In most furnaces and fan coils, the blower operates for 90 sec after both Y and G disappear. This 90-sec delay should be removed, if possible, for maximum dehumidification performance. Consult furnace or fan coil Installation Instructions to see if delay can be disabled.

Dehumidify Off

Dehumidification can be turned off completely. This can be done without changing existing setpoints.

To Select Dehumidification (Between NORMAL, COOL TO, and OFF)

Press HUMIDITY button to bring up humidity selections. Successive presses will show "hu" or "dhu" in clock display. Select "dhu" for dehumidify selections. The large display shows actual humidity level. The smaller display (in cool setpoint location) shows dehumidify setpoint (DSP) or OF (off). When DSP value is displayed, its value can be changed with up and down buttons. Successive presses of MODE button moves between 3 choices above and each will be indicated as in Table 5.

Superdehumidify (With Cool to Dehumidify)

This selection only affects cool-to-dehumidify operation. It is part of the installer setup (see Configuration Option No. 7) and must be made by installer. The Homeowner's Guide does not cover this selection. A requirement is the use of a variable-speed blower with superdehumidify capability. During cool-to-dehumidify call, it provides maximum dehumidification by reducing airflow to a minimum. The actual superdehumidify command from Thermidistat Control to blower is a Y signal without a G signal in addition to dehumidify signal. The blower responds to this combination by reducing the airflow to a minimum. All other characteristics of cool to dehumidify are the same.

Additional Dehumidify Comments

Dehumidification can be enhanced (with some efficiency loss) by turning blower off immediately at the end of each cooling cycle (eliminating normal 90 sec blower off delay). Where maximum humidity removal is desired, this should be done, if possible. Fan coils have the capability of removing this off delay, furnaces do not. On FK Fan Coils, set delay tap to 0/0. On standard fan coils, a jumper can be cut to disable off delay. Refer to fan coil Installation Instructions for details. If FAN is set for continuous operation (fan ON icon displayed), G output is turned off for 5 minutes at the end of each cooling cycle as long as dehumidify demand exists.

Like humidify, dehumidify actions are initiated when humidity is 1 percent above setpoint and are terminated when humidity drops to 1 percent below setpoint. This prevents unnecessary toggling of dehumidify actions when humidity is near setpoint.

The vacation mode contains additional dehumidify features designed to protect an unoccupied home. Refer to the "Vacation" section for additional information.

With any dehumidify selection, if the system has a 2-speed compressor (DIP switch No. 2 is ON) and does NOT have a variable-speed blower (Configuration Option No. 5 set to OFF), all cooling will be done at high speed while dehumidify demand exists. This is because the combination of 2-speed compressor without variable-speed blower generally has poor water removal on low speed.

Dehumidify Output and Equipment Connections

When there is a dehumidify demand, dehumidify output is activated, which means that a 24-vac signal is removed from the DHUM output terminal. In other words, dehumidify output logic is reversed — output is turned ON when no dehumidify demand exists and is turned OFF when demand exists. This logic reversal has come about from historical use of a standard humidistat to do dehumidification. The humidistat contacts open on high humidity, thus removing a 24-vac signal to initiate dehumidification. Equipment has been designed to operate in this manner, so the Thermidistat Control must now accommodate the existing equipment.

Carrier FK4C Variable-Speed Fan Coils and 58UHV, 58UXV 2-Stage 80% Variable-Speed Furnaces have dehumidify inputs which should be directly connected to Thermidistat Control DHUM output. They are compatible with reverse logic output and will reduce their cooling CFM by 20 percent when a dehumidify demand is present.

The FK4C Fan Coil has a terminal marked DH which should be connected to the Thermidistat Control DHUM output. Jumper J1 on fan coil MUST be removed. It is located behind the DH terminal. Additionally blower delay tap on fan coil should be set to 0/0 (no ON delay and no OFF delay) when using cool to

Fig. 6—Wiring Diagram Reference Chart

EQUIPMENT SELECTION	SINGLE-SPEED AIR CONDITIONER	TWO-SPEED AIR CONDITIONER	SINGLE-SPEED HEAT PUMP	TWO-SPEED HEAT PUMP
Typical Fan Coil	Fig. 2	Fig. 3	Fig. 4	Fig. 5
FK4C Fan Coil	Fig. 6	Fig. 7	Fig. 8	Fig. 9
1-Stage Furnace	Fig. 10	Fig. 11	Fig. 12	Fig. 13
2-Stage Furnace	Fig. 14	Fig. 15	Fig. 16	Fig. 17
Variable-Speed Non-condensing Furnace	Fig. 18	Fig. 19	Fig. 20	Fig. 21
Variable-Speed Condensing Furnace	Fig. 22	Fig. 23	Fig. 24	Fig. 25

dehumidify. With this selection, the blower stops when G signal is removed, preventing re-evaporation of water from the coil which would occur during the normal 90 sec blower off delay. See Table 6 and Fig. 6 through 9.

On 58UHV and 58UXV Furnaces, a green wire marked DHUM is connected to a spade lug which is connected to the G input terminal. Unplug spade lug, cut off spade receptacle from wire end, and splice a wire between green DEHUM wire and Thermidistat Control DHUM terminal. See Table 6 and Fig. 18 through 21.

Carrier 58MVP Furnaces have a dehumidify input also, but its logic sense is reversed, and a relay is required between Thermidistat Control and furnace. The relay coil is connected between DHUM output and C terminal. Its normally closed contact is connected between R terminal (at furnace) and DH terminal (at furnace), which is a spade lug located next to transformer secondary connections. See Table 6 and Fig. 22 through 25. When dehumidify demand exists, relay is de-energized, and normally closed contacts supply 24vac to the furnace DH terminal. This furnace reduces its airflow by 15 percent when dehumidify signal is present.

VACATION

A vacation selection is available specifically for times where the home will not be occupied for an extended period. For convenience, 1 button selects vacation mode which is indicated by OUT icon on display. Vacation mode also has an automatic hold, meaning that setpoints are not affected by the programmed schedule. While in vacation mode, the system provides temperature and humidity protection for the home in all seasons, but not comfort.

Vacation Setpoints

A special set of temperature and humidity setpoints exists which are active in vacation mode. They are adjustable by the homeowner, are exclusively for vacation mode, and are remembered from 1 vacation selection to the next. These setpoints will be higher for cool and dehumidify and lower for heat and humidify than those of occupied mode.

Vacation Humidification

Normal humidify is available, using vacation setpoints. Humidification by fan only is not available as vacation selection. Auto humidification is available, adjusting its setpoint with outdoor temperature the same as when occupied. The maximum humidity setpoint can be adjusted separately from the occupied value, but it must always be less than occupied value. This allows humidification to track outdoor temperature identically, whether occupied or vacation, but allows maximum humidification to be less when unoccupied. Vacation humidification can be turned off independently of occupied humidification.

Vacation Dehumidification

Normal Dehumidify, Cool to Dehumidify, and Dehumidify OFF, are all available in vacation mode, and selection of 1 of these can be different from that of occupied. Vacation dehumidification selection and setpoints are remembered the next time vacation is used.

Cool to dehumidify operates slightly differently, allowing the home to be cooled to as low as 70°F when trying to achieve dehumidify setpoint. The balance between dehumidify and temperature setpoint adjustments is 1 percent setpoint increase per degree of overcooling for temperatures below 76°F. For example, at 74°F dehumidify setpoint is raised 2 percent, and at 72°F dehumidify setpoint is raised 4 percent. At temperatures above 76°F, dehumidify setpoint is not changed.

Under no conditions will the house be cooled below 70°F, regardless of dehumidify demand.

OPERATIONAL INFORMATION

FIVE-MINUTE COMPRESSOR TIMEGUARD

This timer prevents compressor from starting unless it has been off for at least 5 minutes. It can be defeated for 1 cycle by simultaneously pressing FAN mode button and INCREASE TEMPERATURE button.

FIFTEEN-MINUTE CYCLE TIMER

This timer prevents the start of a heating or cooling cycle until at least 15 minutes after the last start of the same cycle. Its function is to assure that equipment is not cycled more than 4 times per hr. This timer is defeated for 1 cycle when desired temperature is manually changed. It can also be defeated for 1 cycle by simultaneously pressing FAN mode button and INCREASE TEMPERATURE button.

FIFTEEN-MINUTE STAGING TIMER

In multistage heating or cooling, this timer prevents any higher stage from turning on until preceding stage has been on for 15 minutes. This timer is defeated if temperature error is greater than 5°F (usually due to a large change in desired temperature).

THREE-MINUTE MINIMUM ON TIME

In normal operation, when a stage turns on, it will not turn off for a minimum of 3 minutes.

HEAT/COOL SETPOINTS (DESIRED TEMPERATURE)

A minimum difference of 2° is enforced between heating and cooling desired temperatures. This is done by allowing 1 setting to "push" the other, to maintain this difference. This difference is adjustable via Configuration Option 14.

EQUIPMENT ON INDICATORS

When cooling equipment is on, a COOL icon preceded by a small triangle is displayed below cool setpoint. While cooling equipment turn on is delayed by a staging or cycle timer, triangle will flash. The same is true for HEAT icon and its preceding triangle located under heat setpoint. These 2 arrows are also used to indicate state of humidify and dehumidify outputs. See next section.

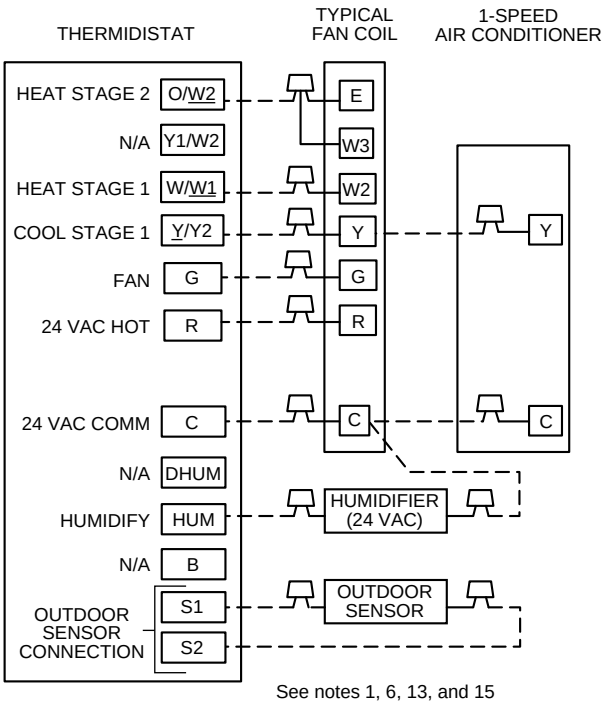


Fig. 2—Typical Fan Coil With 1-Speed Air Conditioner

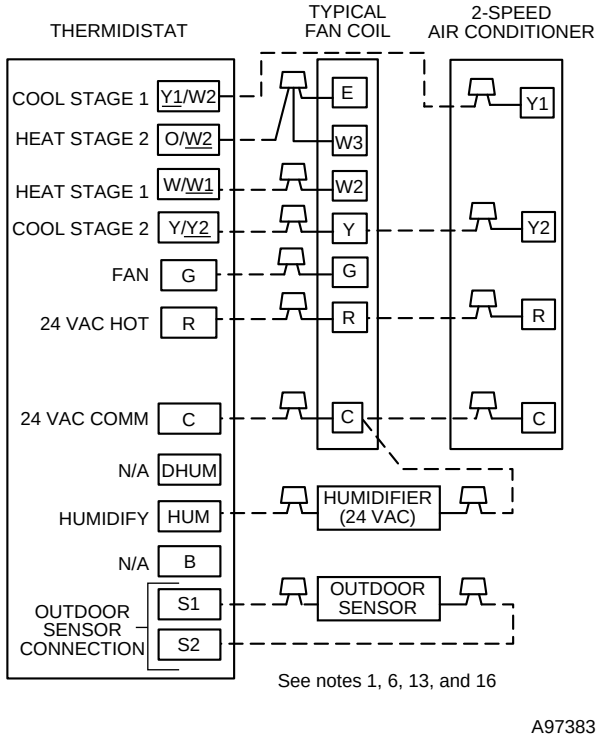


Fig. 3—Typical Fan Coil With 2-Speed Air Conditioner

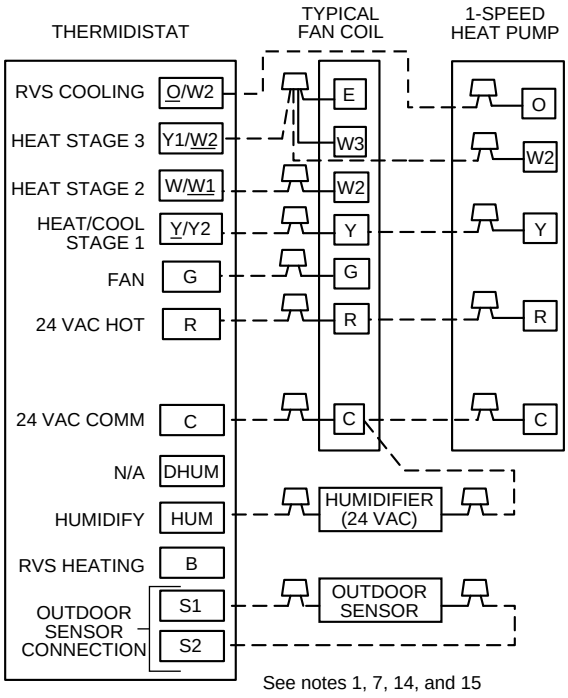


Fig. 4—Typical Fan Coil With 1-Speed Heat Pump

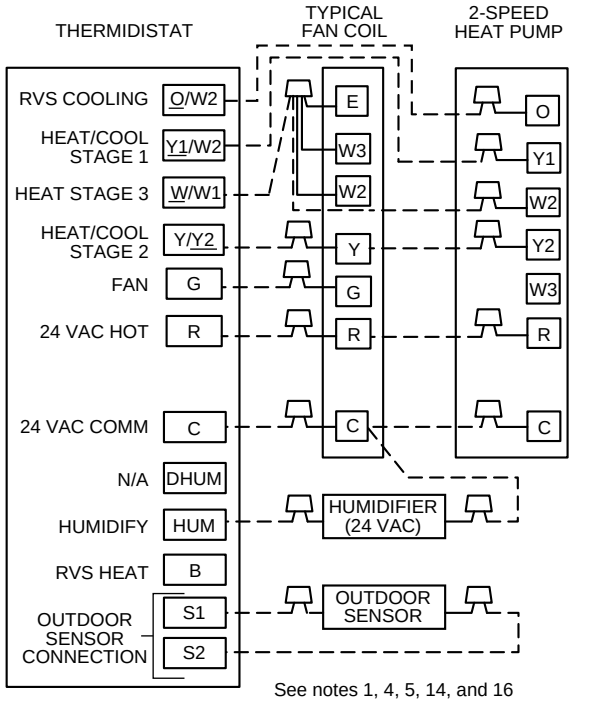


Fig. 5—Typical Fan Coil With 2-Speed Heat Pump

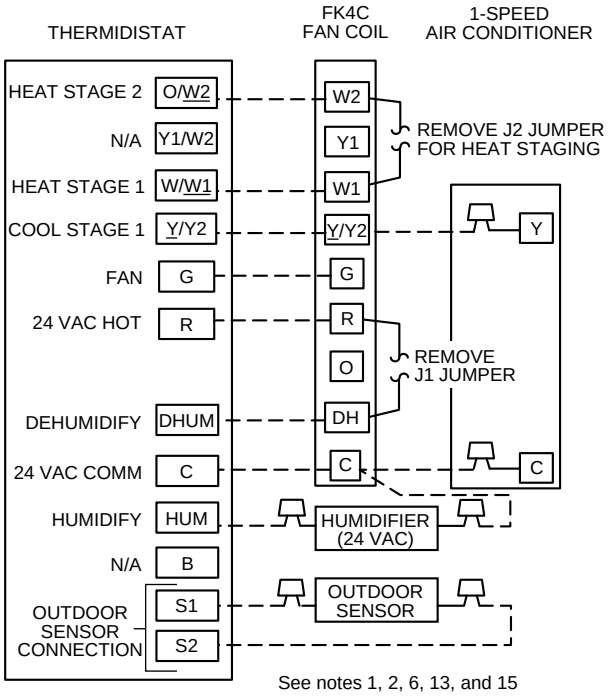


Fig. 6—FK4C Fan Coil With 1-Speed Air Conditioner

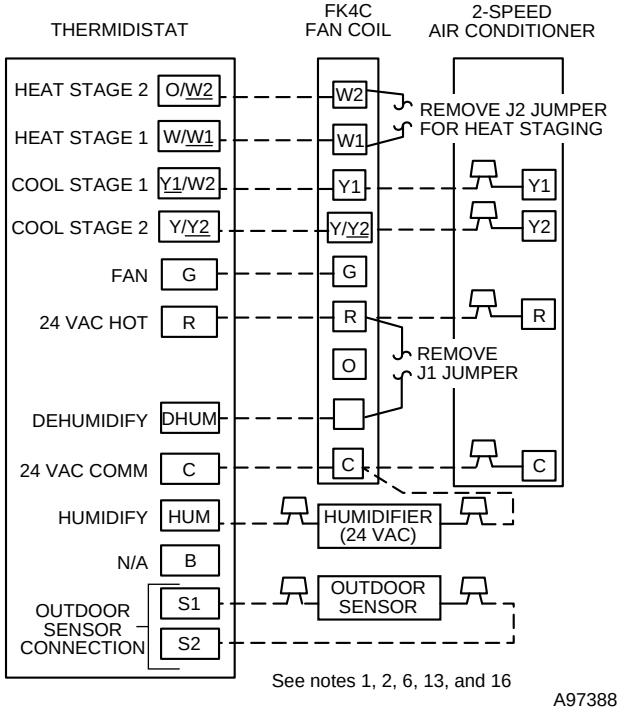


Fig. 7—FK4C Fan Coil With 2-Speed Air Conditioner

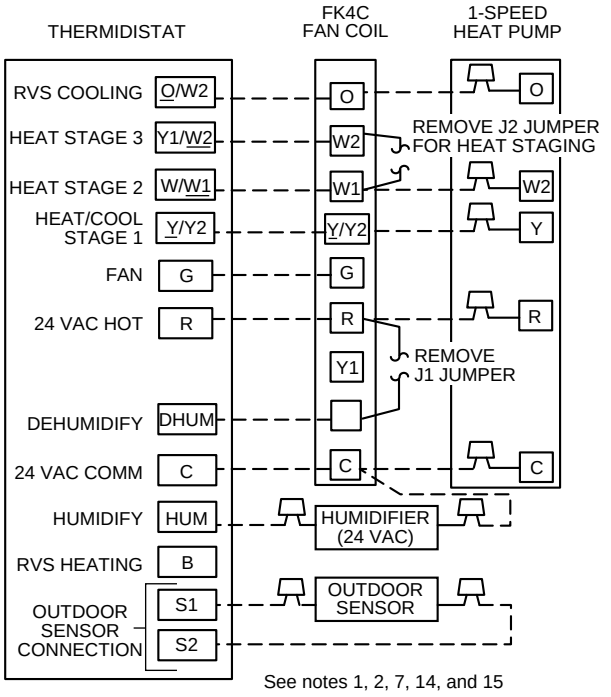


Fig. 8—FK4C Fan Coil With 1-Speed Heat Pump

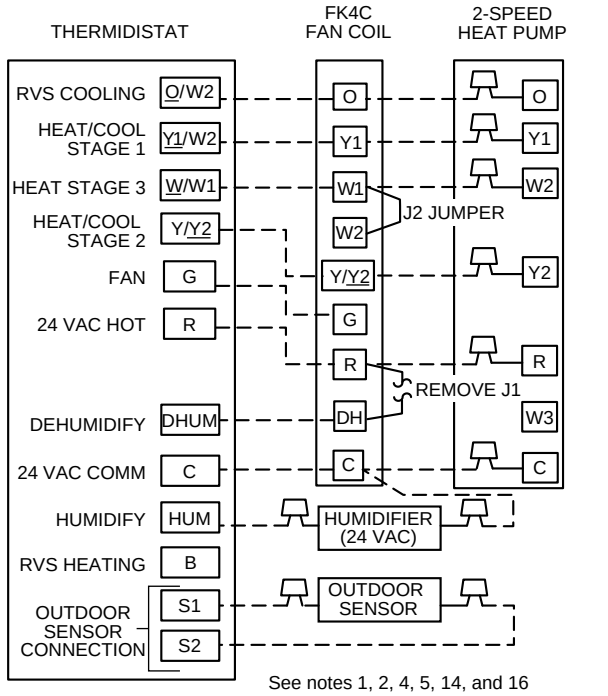


Fig. 9—FK4C Fan Coil With 2-Speed Heat Pump

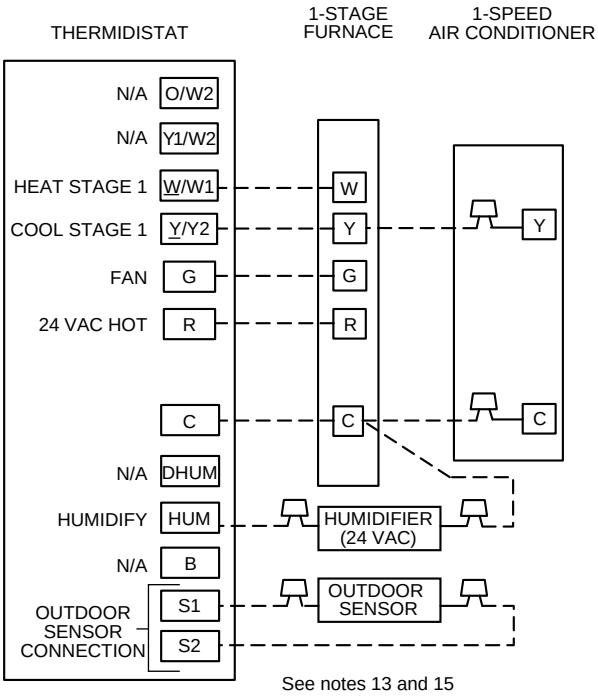


Fig. 10—Single-Stage Furnace With 1-Speed Air Conditioner

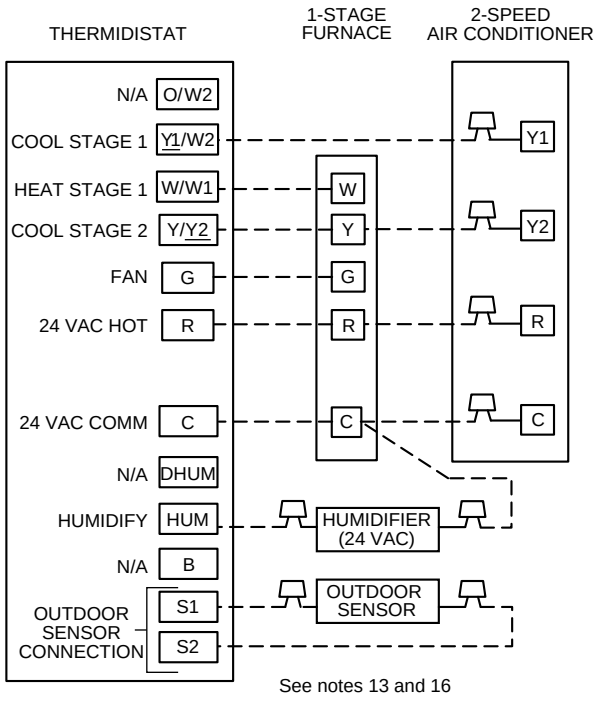


Fig. 11—Single-Stage Furnace With 2-Speed Air Conditioner

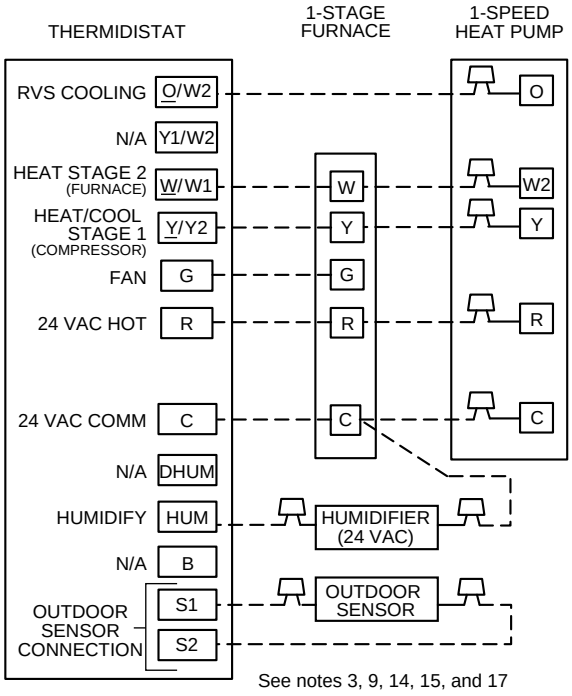


Fig. 12—Single-Stage Furnace With 1-Speed Heat Pump (Dual Fuel)

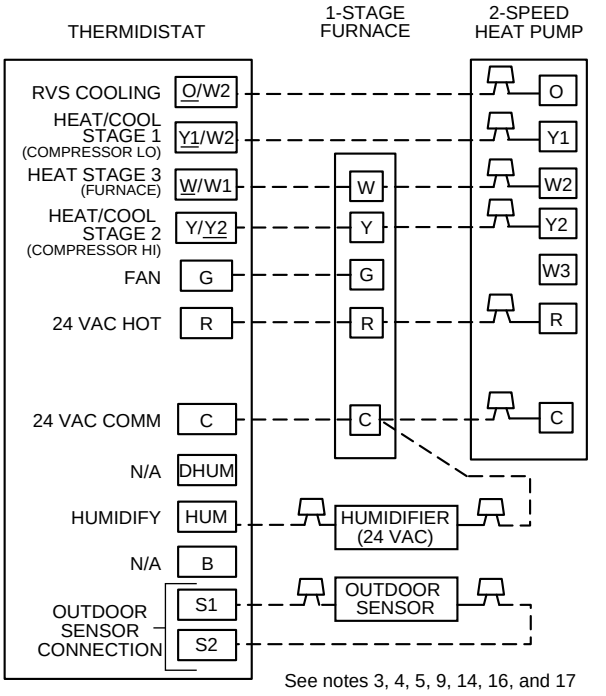


Fig. 13—Single-Stage Furnace With 2-Speed Heat Pump (Dual Fuel)

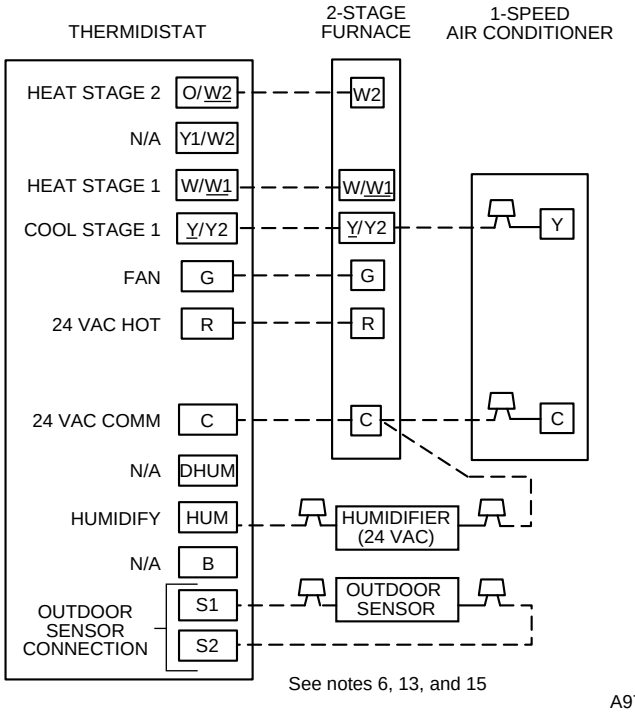


Fig. 14—Two-Stage Furnace With 1-Speed Air Conditioner

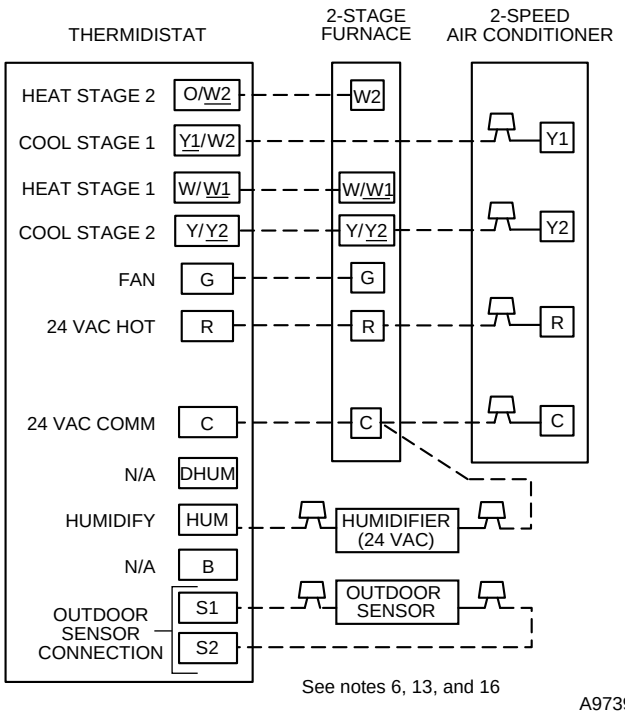


Fig. 15—Two-Stage Furnace With 2-Speed Air Conditioner

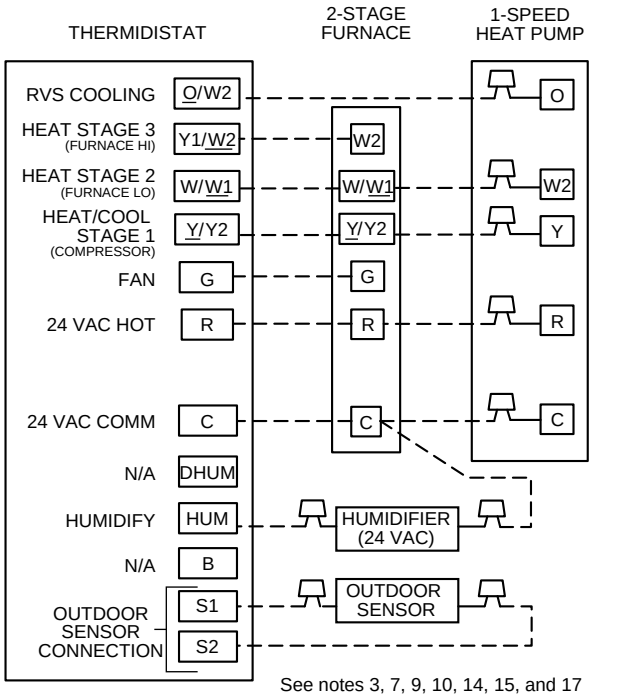


Fig. 16—Two-Stage Furnace With 1-Speed Heat Pump (Dual Fuel)

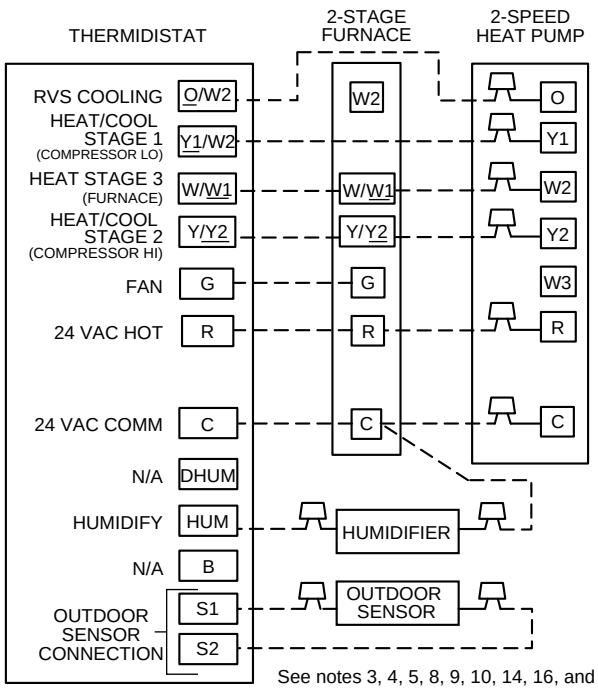


Fig. 17—Two-Stage Furnace With 2-Speed Heat Pump (Dual Fuel)

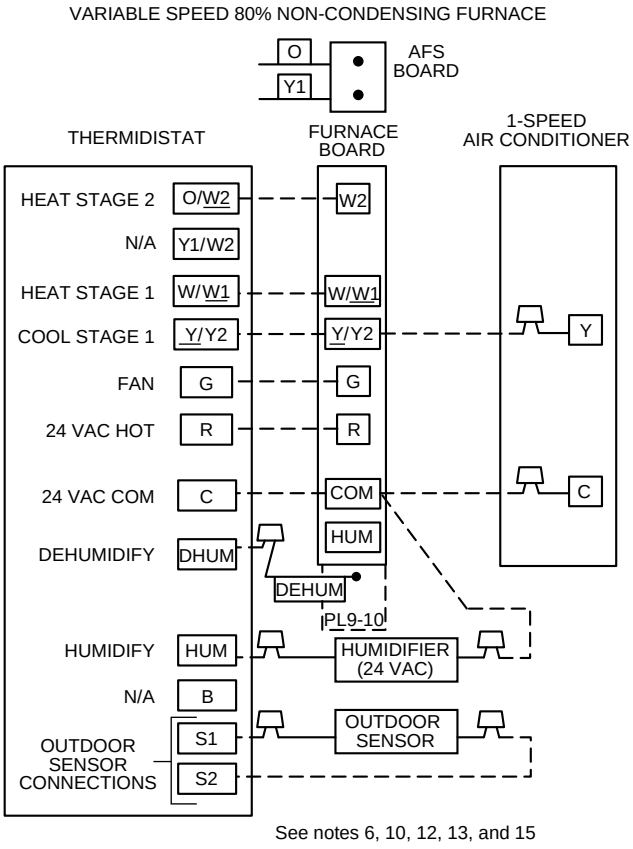


Fig. 18—Variable-Speed Non-Condensing Furnace With 1-Speed Air Conditioner

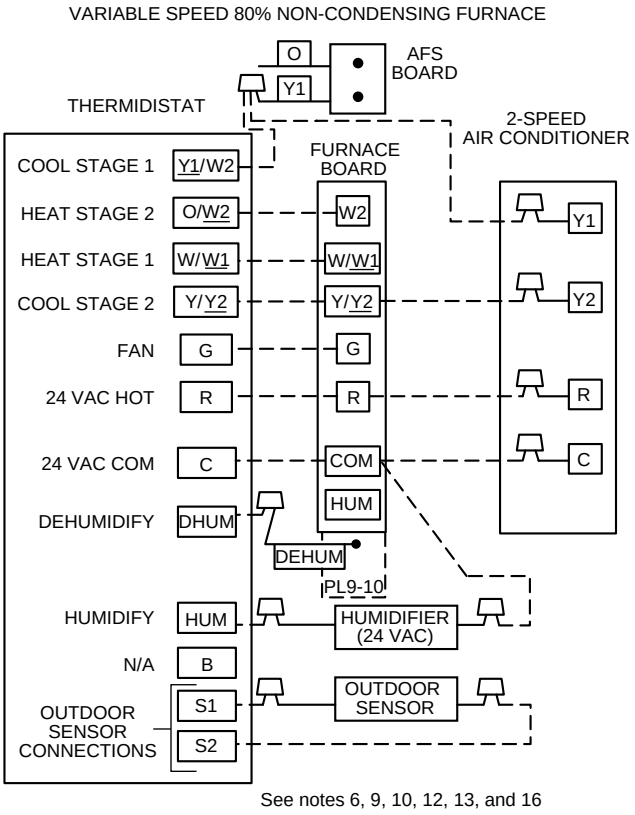


Fig. 19—Variable-Speed Non-Condensing Furnace With 2-Speed Air Conditioner

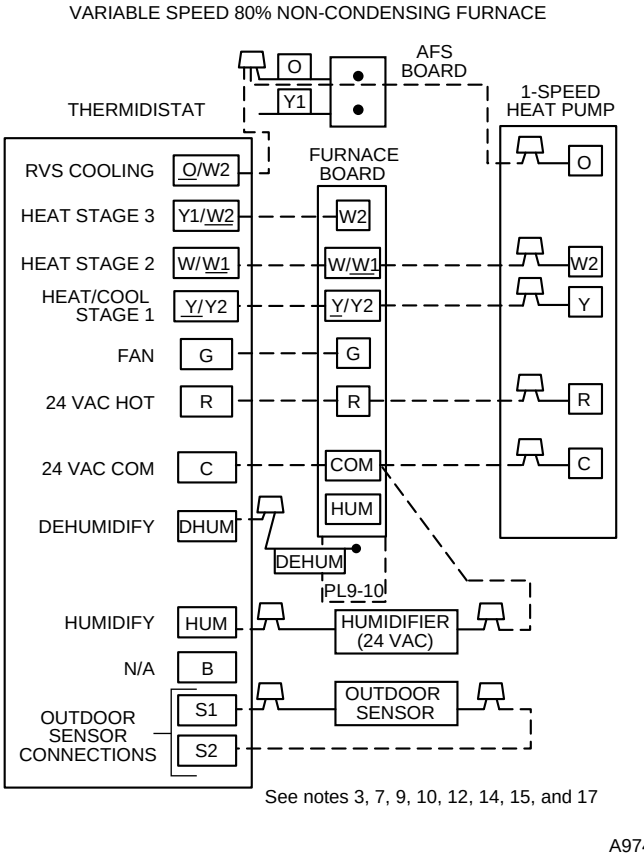


Fig. 20—Variable-Speed Non-Condensing Furnace With 1-Speed Heat Pump (Dual Fuel)

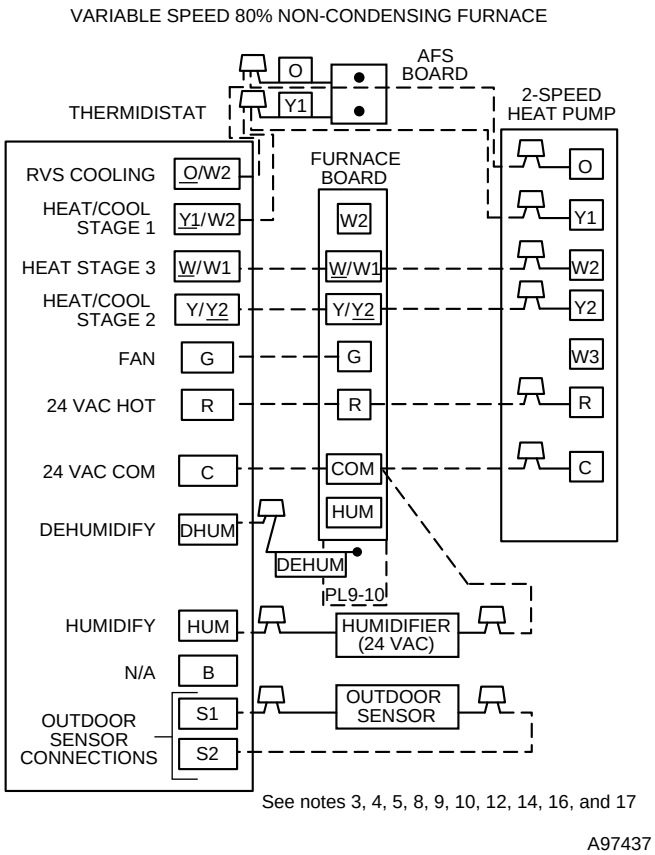


Fig. 21—Variable-Speed Non-Condensing Furnace With 2-Speed Heat Pump (Dual Fuel)

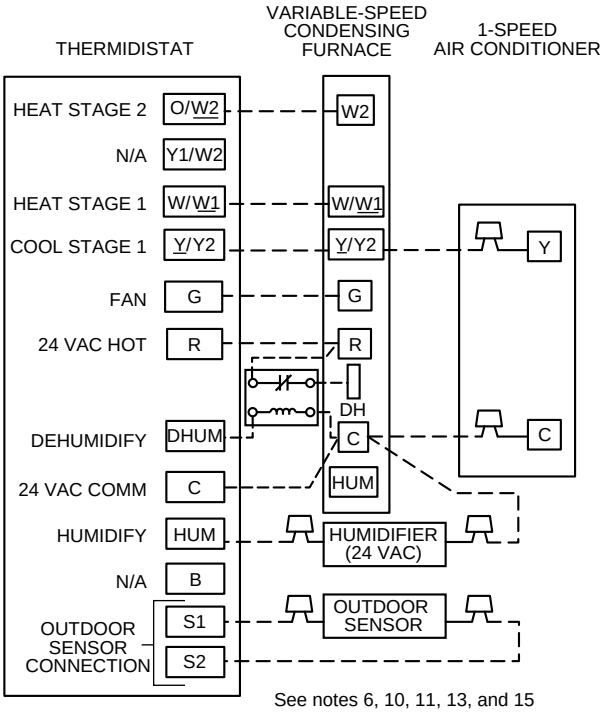


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Fig. 22—Variable-Speed Condensing Furnace With 1-Speed Air Conditioner

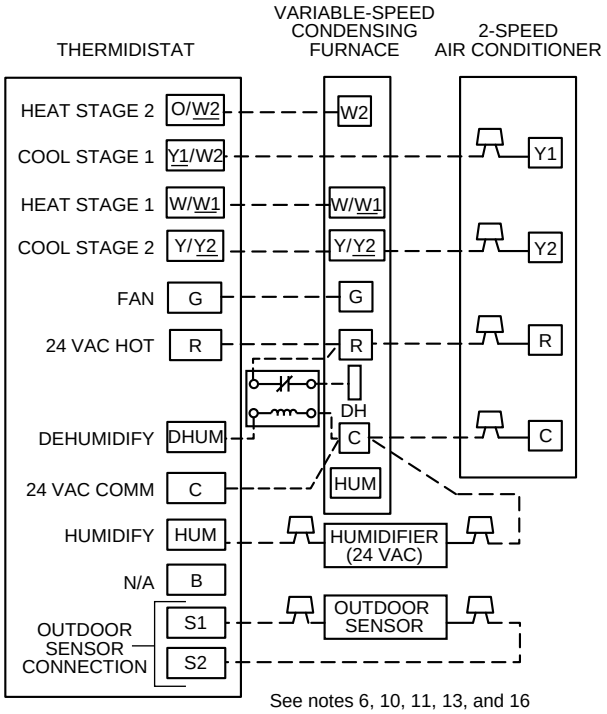

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Fig. 23—Variable-Speed Condensing Furnace With 2-Speed Air Conditioner

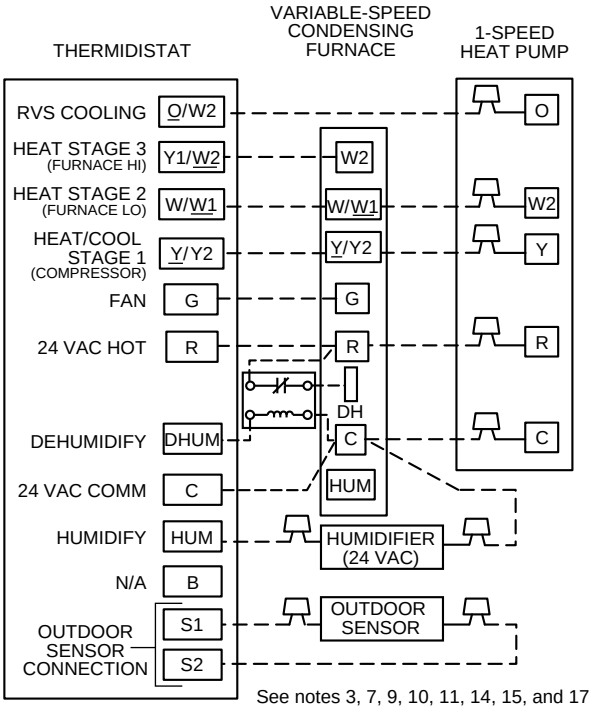

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Fig. 24—Variable-Speed Condensing Furnace With 1-Speed Heat Pump (Dual Fuel)

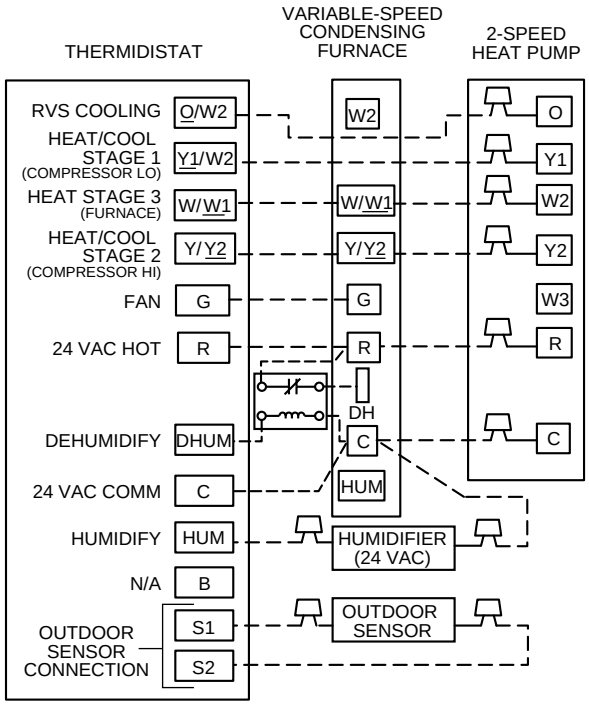

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Fig. 25—Variable-Speed Condensing Furnace With 2-Speed Heat Pump (Dual Fuel)

WIRING DIAGRAM NOTES

1. Refer to Fan Coil Installation Instructions for features and additional wiring information
2. To activate dehumidify function on FK4C, remove J1 jumper at fan coil control board.
3. Heat pump must have a high pressure switch for dual fuel applications.
4. Refer to outdoor equipment Installation Instructions for proper setup.
5. Select the "zone" position on the 2-speed heat pump control board.
6. As an option O/W2 can be used to control second-stage heat. Refer to indoor unit Installation Instructions for proper setup.
7. As an option, Y1/W2 can be used to control third-stage heat. Refer to indoor unit Installation Instructions for proper setup.
8. Furnace must control its own second-stage heat operation via furnace control algorithm.
9. Outdoor air sensor must be attached in all dual fuel applications.
10. Refer to indoor equipment Installation Instructions for proper setup.
11. To activate dehumidify feature on current style variable-speed furnaces (58MVP), a pilot duty 24-vac relay must be used.
12. To activate dehumidify feature on current style variable-speed 80% non-condensing furnace, disconnect green (DEHUM) wire from G on furnace control board and connect to dehumidify terminal on Thermidistat Control.
13. Dip switch No. 1 should be set in **OFF** position for air conditioner installations. This is factory default.
14. Dip switch No. 1 should be set in **ON** position for heat pump installations.
15. Dip switch No. 2 should be set in **OFF** position for single-speed compressor operation. This is factory default.
16. Dip switch No. 2 should be set in **ON** position for 2-speed compressor operation.
17. Configuration Option No. 10 "Dual Fuel Selection" must be turned ON in all dual fuel applications.

HUMIDIFY/DEHUMIDIFY OUTPUT ON INDICATORS

Within humidity select screen (selected by Humidity button and indicated by "hu" or "dhu" on clock display), triangle under humidity setpoint will be on while humidify output is on. Triangle under dehumidify setpoint will be on while dehumidify output is active (turned off, because this output is reverse logic).

AUTO CHANGEOVER

When auto changeover mode is selected, a change from heat to cool (or vice versa) will not occur until an opposite mode demand has existed for 20 minutes. If setpoint is changed, 20-minute requirement is deleted.

EMERGENCY HEAT MODE

When Thermidistat Control is configured as a heat pump and emergency heat is selected, all Y signals are locked out, and W becomes energized upon a call for heat.

POWER ON CHECK

When AC power is first applied, all segments of display are turned on for a few seconds. Following this, temperature display indicates model/configuration via following 2-digit code:

AC—1-speed air conditioner, HP—1-speed heat pump, A2—2-speed air conditioner, H2—2-speed heat pump, HS—1-speed heat pump with 3-stage auxiliary heat, OF—dual fuel, d2—dual fuel with 2-speed.

ERROR CODES

-- — If Thermidistat Control cannot properly read room temperature, display will indicate -- and all outputs (except fan if on) will turn off.

E1, E2 — There is no E1 or E2 error message.

E3 — If Thermidistat Control cannot properly read outdoor temperature, and it is needed for proper operation, display will indicate E3.

E4 — If Thermidistat Control's internal memory fails, E4 will be displayed. Replace Thermidistat Control.

E5 — If Thermidistat Control cannot properly read humidity, E5 will be displayed. Replace Thermidistat Control.

E6 — If defrost cycle continues for longer than 15 minutes. E6 will be displayed. Check heat pump wiring or for failed heat pump defrost control.

SMART RECOVERY

With Smart Recovery selected, transition out of setback begins a fixed time period before selected recovery time and gradually adjusts room temperature so desired temperature will be achieved at selected recovery time. The fixed time period is 1.5 hr. It operates in both heating and cooling.

Thermidistat Control Troubleshooting

SYMPTOM	WHAT TO CHECK
No display	Open Thermidistat Control. Check for 24vac between R and C at screw terminals on mounting base. Reassemble, making sure pins on board engage sockets in mounting base. If display does not appear, replace the Thermidistat Control.
"--" in place of room temperature	Thermidistat Control cannot properly read room temperature. Replace Thermidistat Control.
"E3" or "--" in place of outdoor temperature	Thermidistat Control cannot properly read outdoor temperature. Check outdoor sensor and its wiring.
"E4" or "E5"	Internal failure. Replace Thermidistat Control.
"E6"	System is stuck in defrost. Check wiring and heat pump defrost control board.
"Clean Filter" icon displayed	Filter timer has expired. Clean or replace filter, then press VACATION and HOLD/END buttons together to reset.
Cooling or heating will not come on	See Installer Setup to force heating/cooling. Check for 24vac at equipment terminals. If not present, check wiring.
Humidify or dehumidify will not come on	See Installer Setup to force HUM or DEHUM. Check for 24vac at equipment terminals. If not present, check wiring.

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